IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Applicant(s): Jacobs et al.   Group Art Unit: 2183

Serial No.: 10/762,863   Confirmation No. 5930

Filed: January 22, 2004   Examiner: Vicary, Keith E.

For: COMPRESSED INSTRUCTION FORMAT FOR USE IN A VLIW
     PROCESSOR

Mail Stop Appeal Brief - Patents
Commissioner for Patents
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REPLY BRIEF

Sir/Madam:

    This reply brief is in response to Examiner's Answer of May 5, 2010.

I.   Status of Claims

Claims 1-25 were originally filed on January 22, 2004. In a preliminary amendment filed on January 22, 2004, claims 1-24 were canceled, claim 25 was amended, and new claims 26-29 were added. In response to the Office Action of January 22, 2007, claims 25-29 were canceled and new claims 30-34 were added. In response to the Office Action of October 9, 2008, claims 33 and 34 were canceled and new claims 30-32 were amended. In response to the Final Office Action of March 12, 2009, a Notice of Appeal was filed on June 11, 2009 and an Appeal Brief was filed on August 11, 2009. Claims 30-32 stand rejected in a non-final Office Action after reopening of prosecution and form the subject matter of the present appeal.

Claims 30-32 stand rejected under 35 U.S.C. 102(b) as allegedly being anticipated by U.S. Patent No. 4,251,862 ("Murayama").

This Appeal is made with regard to pending claims 30-32.

II.   Grounds of Rejection to be Reviewed on Appeal

Whether claims 30-32 are anticipated under 35 U.S.C. §102(b) by Murayama.

III.   Argument

In the Office Action of October 26, 2009, the Examiner rejected claims 30-
32 under 35 U.S.C. §102(b) as allegedly being anticipated by Murayama.
However, each element recited in claims 30-32 is not disclosed in the cited
reference of Murayama. Thus, claims 30-32 are not anticipated under 35 U.S.C.
§102(b) by Murayama.

A. Rejection of Independent Claim 30 Under 35 U.S.C. §102(b)

The independent claim 30 was rejected under 35 U.S.C. §102(b) as
allegedly being anticipated by Murayama. However, the cited reference of
Murayama fails to disclose each claimed element of the independent claim 30, as
explained in the Appeal Brief filed on March 25, 2010. Thus, the independent
claim 30 is not anticipated by Murayama under 35 U.S.C. §102(b).

In response to Examiner's Answer notified on May 5, 2005, Applicants
submit the following arguments in support of the conclusion that the independent
claim 30 is not anticipated by Murayama under 35 U.S.C. §102(b).

The Examiner on pages 6 and 7 of the Examiner's Answer states that
"there is no requirement that a prior art reference must use the exact language of
the instant claim language in order to teach the claim language." Nevertheless,
Applicants respectfully note herein that the lack of such language, i.e.,
"compressed" or "compression," is a strong indication that the teachings of
Murayama are not related to the concept of compression.

The Examiner on pages 9 and 10 states that "the bit field 101 of Figure 2
[of Murayama] determines whether the following instruction (of a variable
number of bits, as noted in col. 1, lines 61-62) is of a shorter length (i.e. if the
following instruction does not necessitate a usually unnecessary field and thus
does not need to read from the sub-control memory) or is of a longer length (i.e. if
the following instruction necessitates a usually unnecessary field and thus does

4

need to read from the sub-control memory." The Examiner then asserts that "[i]n other words, the bit field determines whether the following instruction is compressed in a format to fit solely in the main control memory." Applicants respectfully disagree with this assertion.

Applicants agree Murayama teaches that the bit field 101 of a current instruction indicates whether the following instruction is of a "shorter length" or is of a "longer length." However, Applicants do not agree Murayama teaches that the bit field determines whether the following instruction is "compressed" in a format to fit solely in the main control memory. If the following instruction is "compressed," then the following instruction should be a compressed version of an "original" instruction that is longer than the following instruction. That is, if the following instruction is a "compressed" instruction, then there should be an "uncompressed" instruction, which provides the basis for compression to form the following instruction. Murayama does not disclose that there is a longer, uncompressed version of the following instruction.

Murayama merely teaches that there are two type of following instructions that follow a given instruction, the "shorter length" instructions and the "longer length" instructions. If the following instruction is a "shorter length" instruction, then the entire following instruction is stored in the main control memory 1. However, if the following instruction is a "longer length" instruction, then part of the following instruction is stored in the main control memory 1 and the remaining part of the following instruction is stored in the sub-control memory 11. Murayama fails to disclose that any of the instructions, regardless of whether the instructions are of a "shorter length" or are of a "longer length," are "compressed" versions of longer instructions. Thus, Murayama fails to disclose *"a first instruction including **a format field that specifies an instruction compression format**"* (emphasis added) and *"a second instruction, following the first instruction, **that is compressed** according to the format field in the first instruction"* (emphasis added), as recited in the independent claim 30. Therefore, the independent claim 30 is not anticipated by cited reference of Murayama.

5

The Examiner further alleges that Applicants use the term "compression" in the instant specification in an analogous context as the Murayama reference. In particular, the Examiner alleges that page 3 of the instant specification correlates compression to the elimination of unused operations in an instruction word. The cited passage of the instant specification briefly summarizes a scheme for compression of VLIW instructions described in U.S. Patent Nos. 5,179,680 and 5,057,837. However, the scheme described in U.S. Patent Nos. 5,179,680 and 5,057,837 is not analogous to the scheme described in Murayama, as explained below.

In the scheme described in Murayama, unused operations in an instruction word are not eliminated. As described in column 1, lines 49-62, of Murayama, the fields of a microinstruction are divided into usually necessary (frequency used) and usually unnecessary (not frequency used) groups, where the usually necessary fields are always stored in the main control memory and the usually unnecessary fields are stored in the sub-control memory 11. Murayama does not disclose that fields or unused operations in a microinstruction are eliminated. Furthermore, the scheme described in U.S. Patent Nos. 5,179,680 and 5,057,837 specifically states that "the apparatus provides for an advantageous method for storing the instruction words in a **compressed** format" (emphasis added) (see column 15, lines 8-10, of U.S. Patent No. 5,179,680 and column 15, lines 6-8, of U.S. Patent No. 5,057,837). The scheme described in U.S. Patent Nos. 5,179,680 and 5,057,837 uses mask words so that only non-zero instruction fields need to be stored in memory, which means that instruction words are stored in a compacted or "compressed" form, as described in the abstracts. As explained above, Murayama does not disclose "compressed" instructions. Thus, the scheme described in U.S. Patent Nos. 5,179,680 and 5,057,837 is not analogous to the scheme described in Murayama, as explained below.

B. Rejection of Dependent Claims 31 and 32 Under 35 U.S.C. §102(b)

Each of the dependent claims 31 and 32 depends on the independent claim 30. As such, these dependent claims include all the limitations of the independent

6

claim 30. Thus, these dependent claims are patentable for at least the same reasons as their respective base claims.

SUMMARY

The independent claim 30 is not anticipated by Murayama under 35 U.S.C. §102(b) because Murayama fails to disclose the claimed limitations of *"a first instruction including a format field that specifies an instruction compression format"* and *"a second instruction, following the first instruction, that is compressed according to the format field in the first instruction,"* as recited in the independent claim 30. The dependent claims 31 and 32 are also not anticipated by Murayama under 35 U.S.C. §102(b) since these dependent claims include all the limitations of the independent claim 30.

For all the foregoing reasons, it is earnestly and respectfully requested that the Board of Patent Appeals and Interferences reverse the rejections of the Examiner regarding claims 30-32, so that this case may be allowed and pass to issue in a timely manner.

Respectfully submitted,

Jacobs et al.

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